



Munich Personal RePEc Archive

Democratization and civil war

Laura E. Armey and Robert M. McNab

Naval Postgraduate School, Naval Postgraduate School

1. September 2012

Online at <http://mpra.ub.uni-muenchen.de/42460/>

MPRA Paper No. 42460, posted 6. November 2012 16:56 UTC

DEMOCRATIZATION AND CIVIL WAR

Laura E. Armeý
Naval Postgraduate School
699 Dyer Road, Bldg 234
Monterey, CA 93933
WP: 831-656-2818
F: 831-656-2139
E: larmey@nps.edu

Robert M. McNab*
Naval Postgraduate School
699 Dyer Road, Bldg 234
Monterey, CA 93933
WP: 831-656-3132
F: 831-656-2139
E: rmmcnab@nps.edu

Abstract

We examine the impact of civil war on democratization. Using a theoretical bargaining model, we hypothesize that prolonged violence, war termination, the presence of natural resources, and international intervention influence democratization. We test these hypotheses using an unbalanced panel data set of 96 countries covering a 34-year period. We determine that civil war lowers democratization in the succeeding period. This finding appears to be robust to conditioning, different instrument sets, and the measurement of democracy. In addition, we observe evidence that external intervention increases democratization.

Keywords: Civil War, Democracy, Conflict, Democratization, Outcomes of War

JEL classification: H56, N40, O11

***Contact Author**

1. INTRODUCTION

With the withdrawal of U.S. forces from Iraq at the end of 2011 and the ongoing reduction of international forces from Afghanistan, the question of whether democracy emerges post-conflict remains unclear. The fragile nature of democracy in Iraq and the inability to foster democratic governance in Afghanistan bring into question the efforts of the United States and its partners to build democratic systems in the aftermath of civil conflict. The literature on democratization suggests that the prospect of conflict encourages the emergence of democratization (Acemoglu & Robinson, 2005). After a civil war, however the likelihood of future conflict and political decay undoubtedly increases. Still, while “turnarounds” in failing states are rare, they are more likely to occur in a post-war environment (Chauvet & Collier, 2009). Curiously, the literature is largely silent on whether civil war significantly alters the conditions that bring about democracy.

This paper examines the influence of civil war on democratization. If civil war or its characteristics incentivize the emergence of democracy, then international institutions and parties to civil war are likely to have a keen interest in these incentives. Enhancing or attenuating these incentives may increase the likelihood of democratization. On the other hand, if civil war does not alter the likelihood of democracy’s emergence, then this implies that the literature does not clearly portray the mechanisms of democratization. This finding would also suggest that much of the current effort to foster democracy in conflict-prone regions may be prone to failure.

The remainder of this paper is structured as follows. In the next section, we briefly review the literature on the drivers of democratization. The third section develops the testable hypotheses, describes the data, and discusses the estimation methodology. The fourth section of the

paper presents and discusses the results. The last section concludes and offers advice on future research.

2. A BRIEF REVIEW OF THE LITERATURE

In this section, we briefly review the literature on the determinants and outcomes associated with civil war and their impacts on democratization. Empirical evidence suggests that following civil wars, democracy appears to rebound, but post-war countries have less democratic trends than their peaceful counterparts (Chen, Loayza, & Reynal-Querol, 2008). They are also likely to suffer from enduring rivalries that promote continued conflict (Derouen & Bercovitch, 2008). Civil war, simply put, appears to be a development trap (Collier, 2008; Collier & Hoeffler, 2004).

However, theory suggests that democracy may arise as a compromise to prevent and settle wars. The economic costs of conflict may encourage parties to democratize (Rosendorff, 2001). Protracted conflicts may result in the realization that neither side is likely to prevail and that the benefits of peace outweigh the benefits of continued conflict (Jensen & Wantchekon, 2004; Wantchekon, 2004). Democracies may also be attractive given their relative performance to autocracies over time (Gleditsch, 2002). Democratic governance, while imperfect, is relatively efficient and effective when compared to other forms of governance (Sen, 2000) and appears to be growth enhancing (Perotti, 1996).

Although little empirical evidence is available to suggest whether war impacts democratization, studies of post war samples have suggested that if a conflict ends with military victory, democratization is less likely to occur (Gurses & Mason, 2008; Joshi, 2010). Significant

endowments of natural resources also appear to lower the prospects for democratization (Aslaksen, 2010; Epstein, Bates, Goldstone, Kristensen, & O'Halloran, 2006; Ross, 2006). Resource-rich societies have fewer incentives to distribute power to stakeholders and higher levels of inequality; both of which appear to inhibit democratization (Karl, 1999; Rosendorff, 2001). Still others have argued that natural resource endowments may stabilize existing democratic regimes (Gurses, 2011).

External intervention in civil wars may also influence democratization by allowing for the formation of credible commitments (Fortna, 2004; Walter, 2001). UN intervention appears to generate stable peace and democracy in non-identity wars (Doyle & Sambanis, 2000). UN intervention may also accelerate the occurrence of democratic elections, although early elections may provide an incentive for the emergence of individuals and parties who favor a return to conflict (Brancati & Snyder, 2011; Hoddie & Hartzell, 2010; Joshi, 2010). This question is far from settled, however, as other studies have found that UN intervention has had no statistically significant impact on democratization (Fortna & Huang, 2009) and that intervention can prolong war (Cronin, 2010).

The choice of democracy index and empirical methodology may also significantly influence the conclusions with respect to the emergence (or lack thereof) of democracy. Most papers employ either the Freedom House measures of civil liberties and political rights or the Polity IV democracy score, each of which employs a different strategy for measuring democracy and naturally contains measurement error. Some researchers have used Ordinary Least Squares (OLS) or Tobit estimators to argue that a variety of factors including resource rents and war characteristics, significantly influence democratization (Collier & Hoeffler, 2004; Epstein et al.,

2006; Fortna & Huang, 2009; Ross, 2001). These findings are subject to suspicion, however, due to the presence of country-specific effects and the persistence of democracy. When using a difference Generalized Method of Moments (GMM) estimator to control for these country-specific effects and the persistence of the democracy (and other) variables, factors such as education, no longer appear to statistically significantly influence democratization (Acemoglu, Johnson, Robinson, & Yared, 2008; Acemoglu, Johnson, Robinson, & Yared, 2005). More recently, an argument has emerged that, in small samples, the system GMM estimator is not only consistent but also relatively efficient to the difference GMM estimator with respect to empirical investigation of the determinants of democratization (Aslaksen, 2010; Castelló-Climent, 2008; Csordás & Ludwig, 2011; Heid, Langer, & Larch, 2012). These studies have found limited evidence for a statistically significant relationship between resource rents, education, economic growth, and democratization. We seek to build upon this empirical literature to examine the influence of civil war on democratization.

3. THEORETICAL MODEL

The model appearing in this section stresses the outcomes of civil war and the competition between the government and the rebels for the populace. The populace, in accordance with current counter-insurgency doctrine is the ‘center of gravity.’ We rely on a theoretical framework that focuses on bargaining between the government, the rebels, and the civilian populace. Any factor that positively influences popular participation in violence increases the willingness of the government to offer concessions for its mitigation (Collier, 2008; Collier & Hoeffler, 2004). This result suggests that as the costs of war increase, each side may be willing to compromise to limit further popular participation.

Following Arena & Hardt (2011), the government, G , and rebels, R , are engaged in conflict. G can offer concessions, $x \in [0,1]$, to R . If R accepts x , the war ends and G receives $1-x$ while R receives x . The populace, P , which we assume is not engaged in the conflict, receives the value of the pre-conflict status quo, q , minus the loss of utility resulting from conflict ξ , where $\xi \in (0,1]$.

If R rejects x , the conflict continues. As Arena & Hardt (2011) argue, R may reject x because it views x as low relative to G 's capacity to increase x or because R believes that continuing to fight may result in higher economic benefits. R may thus decide to offer, $y \in [0,1]$, to P , so that some portion of P takes up arms in support of R . We assume that the precise proportion of P taking up arms is equal to y , so that $(1-y)$ remains on the sidelines of the ongoing conflict.

Let w be the share of the good in conflict that R expects to obtain from G through continued conflict, where w is assumed to depend on the relative strength of R and G . When P rejects R 's offer of y , then R expects to acquire $w = r/(r+g)$ where $r > 0$ and $g > 0$ are expressions of R 's and G 's strength, respectively. If P accepts R 's offer, then R expects to acquire $z = (r+y)/(r+y+g)$ where R retains $z(1-y)$ and P obtains zy for its support of R .

Let c_g , c_r , and c_p be the costs to G , R , and P of conflict where $c \in (0,1]$ and is fixed for each of the parties to the conflict. If P accepts R 's offer of y , then G 's payout is $1 - z - c_g$ else $1 - w - c_g$. For R , P 's acceptance results in a payout of $z(1-y) - c_r$; otherwise $w - c_r$. Finally, from P 's perspective, if P does not accept y , then P 's payout is equal to $q - \xi$. On the other hand, if P accepts y , then a portion of P supports R , and the payout changes to $y(q - \xi) + (1 - y)(z - c_p)$.

P will not accept R 's offer of any amount if P is satisfied with the status quo (Arena & Hardt, 2011; Collier & Hoeffler, 2005). Conversely, as the status quo worsens, we would expect popular support for a rebellion to increase. How, then, does civil war affect this outcome? War occurs because a democratic solution was untenable to the parties and they were willing to bear the cost of war. War substitutes for peaceful democratic competition. The termination of war suggests that the cost of war has grown too significant (resource exhaustion) or that one party triumphed over the other (military victory). A potential method of sharing the benefits of ending a conflict would be democratic governance; else there would be an incentive for one or more of the parties to continue warfare. On the other hand, the end of conflict could increase the capacity of G , lowering the incentive for R to rebel over time, and negatively affect democracy.

Hypothesis 1: All else being equal, the termination of a civil war has a statistically significant impact on democratization in the succeeding period

How, then, do the characteristics of civil war potentially affect this outcome? A potential method of sharing the benefits of ending a conflict would be democratic governance; else there would be an incentive for one or more of the parties to continue warfare. Democratization could also increase the capacity of G , lowering the incentive for R to rebel over time. How, then, does civil war affect this outcome? We would expect that protracted war which would cause the value of w to diminish, and war without a clear winner where the costs of continued conflict appear high and should increase the preference a resolution that would ameliorate the continued costs of war.

Hypothesis 2a: All else being equal, a war that ends with no clear victor has a statistically significant impact on democratization in the succeeding period

Hypothesis 2b: All else being equal, the termination of a protracted conflict has a statistically significant impact on democratization in the succeeding period

From the perspective of this paper (and the literature), r and g are also important in that they are measures of the ability of R and G to continue conflict. If G but not R , for example, has access to natural resources, then the capacity of G to wage war would be relatively higher than in the instance where neither or both had access to natural resources (and vice versa). This suggests that the presence of natural resources may influence the willingness of the parties to avoid conflict by setting aside their differences and settling disputes in a democratic manner.

Hypothesis 3: All else being equal, an increase in the endowment of natural resources has a statistically significant impact on democratization in the succeeding period.

Finally, could outside intervention influence conflict and democratization? An outside party could strengthen G or R , and reduce costs to P of conflict. Many Non-Governmental Organizations (NGOs) that operate in conflict zones have an explicit mission of providing aid to non-combatants, reducing the scourge of war. Outsiders, either unwittingly, or because of conflicting objectives, can undermine state capacity, or they can encourage power sharing through investments in state capacity (McBride, Milante, & Skaperdas, 2011). The displacement of state capacity is obvious in Afghanistan where foreign nations provide ‘advice’ to important ministries, but interviews suggest that the foreign nations are actually conducting day-to-day operations.

Hypothesis 4: All else being equal, multi-lateral intervention influences democratization in the succeeding period.

4. EMPIRICAL ANALYSIS

We now turn to examining the empirical support for each of these hypotheses. To do so, we employ a panel data set of developing and developed countries to explore this relationship.

4.1 Data and Model Specification

One common problem in cross-country studies of democratization is how to properly measure the extent of democratization. Democratization is a complex process involving many public and private institutions and we readily acknowledge that any measure of democratization is likely to be imperfect. Ideally, we would construct a panel data set of civil and political institutions to effectively quantify the democratically oriented activities of society. This would demand not only significant knowledge about formal institutions but also informal institutions. Constructing such a panel data set would require information not only on the political, administrative, and fiscal operation of the central government but also about subnational governments. Unfortunately, we cannot readily address these issues with the available data. We are left with the standard, albeit imperfect, measures of democratization.

Several measures of democracy, not surprisingly, are available. The Freedom House, for example, constructs measures of civil and political rights, which we can use to construct a composite measure of democracy. Violent conflict is included in the calculation of both of these scores (it reduces democracy in both cases) biasing the measurement of democracy downward during conflict and upwards post-conflict. Unfortunately, the components of the Freedom House measures are not readily available and we are unable to decompose these measures net of

conflict. We can, however, examine the components of the Polity IV measures of democracy and autocracy. We construct the POLITY score by subtracting the measure of autocracy from the measure of democracy; however, two components contain conflict as criteria to determine the POLITY score (Vreeland, 2008). We subtract the *Regulation of Participation* and *Competitiveness of Participation* components of the democracy score as these measures include aspects of conflict. To examine the robustness of our results to alternative specifications, we compare our constructed measure of democratization to that reported in the Polity IV database.

To build our final data set, we draw data on Gross Domestic Product (GDP) from the Penn World Tables (Heston, Summers, & Aten, 2011); population and other socio-economic data from the World Development Indicators (2011), the Correlates of War dataset, and peacekeeping data from the United Nations and (Csordás & Ludwig, 2011). We construct a measure of natural resource rents per capita and oil rents per capita. We employ this measure rather than the more traditional measure of resource rents or exports as a proportion of GDP. War results in the disruption of economic activity, thus resource rents as a proportion of GDP may in fact increase during conflict. We, do test for robustness using both of these more traditional measure of resource wealth, which have been linked to lower economic growth, the onset of civil war, and lower levels of democracy (Collier & Hoeffler, 2004; Ross, 2006; Sachs & Warner, 1999, 2001).

For each country in the sample, we have potentially one observation for each of the sub-periods (1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994, 1995-1999, 2000-2004) (Acemoglu et al., 2005; Castelló-Climent, 2008; Collier & Hoeffler, 2004). The annual data are noisy and we are concerned that using them may result in spurious correlations. Second, we seek

to avoid short-term fluctuations and focus on changes in the variables across time (Fortna & Huang, 2009). We also investigate whether the results are robust to alternative measures of democracy, estimators, control variables, and instrument size (Jensen & Wantchekon, 2004; Roodman, 2008; Wantchekon, 2004). Combining the Polity data with data extracted from other sources results in a dataset of 620 observations. The final panel data set is unbalanced and covers 96 countries from 1970 to 2004. Table 1 defines the variables used in the empirical model and their sources. Tables 2 and 3 present descriptive statistics of these variables, the sample countries, and time periods, respectively.

Tables 1-3 here

We define the dependent variable, *Democracy*, as the Polity IV score for democracy net of the *Regulation of Participation* and *Competitiveness of Participation* components of the democracy score.. For robustness we define *Democracy-Alternate* as the Freedom House measure of democracy. Following the Correlates of War database (Sarkees & Wayman, 2010), we define war as a dummy variable that is equal to one if a war starts or is ongoing in a period; 0 otherwise. The end of conflict (*War End*) is also a dummy variable, coded 1 if a war ends in the period; 0 otherwise. Likewise, we create dummy variables to capture a rebel victory (*Rebel Win*), United Nation's military intervention (*U.N. Intervention*), and a count variable to capture the duration of the conflict in years at its conclusion (*Duration*). A matrix X of control variables includes population, population density, GDP per capita, natural resource endowments, and openness to international trade (Gleditsch, 2002; Levine & Renelt, 1992).

We employ the following estimation strategy to estimate the impact of civil war on democratization.

$\text{Democracy}_{i,t} = \alpha_0 + \beta \text{Democracy}_{i,t-1} + \tau w_{i,t-k} + \gamma X_{i,t-k} + c_i + \lambda_t + u_{i,t}$	(1)
--	-----

where c_i and λ_t denote the unobserved country and time effects. The subscripts i , k , and t denote country, lags, and time period, respectively. The binary indicator, w , indicates whether a war has ended. The coefficient τ captures the treatment effect of interest. We assume that the error term $u_{i,t}$ follows a random walk. The error components' specification accounts for time-invariant characteristics that may influence the development of democracy, to include colonial heritage, geographical location, and cultural characteristics, among others. The specification also accounts for unobservable global trends that may also influence the development of democracy.

4.2 Econometric Issues:

We replicate and extend the existing literature on the relationship between civil wars and democracy. We first present results from a pooled Ordinary Least Squares (OLS), Fixed Effects (FE), and Fixed Effects model with an Autoregressive Process of order 1 disturbance (FE AR(1)). We note that the pooled OLS model explicitly assumes that the country-specific effects are equal to zero and, in the presence of persistent effects, is inconsistent. We then present the FE and FE AR(1) estimates. We note that both error components' estimators preclude the use of several time-invariant variables used in previous literature.¹ We must make caveats, however, to employ the FE estimator. First, the policy indicator (w) must be strictly exogenous to the u_{it} else the FE estimator is inconsistent. If the policy assignment changes in reaction to past outcomes on y_{it} , then it violates strict exogeneity. In cases where $w_{it} = 1$ whenever $w_{ir} = 1$ for $r < t$, strict exogeneity is usually a reasonable assumption, however, this implies that once a war begins, it does not end or, conversely, that when there is no war at time r , there is no war at time t . Our interest lies in those cases where war in time r is succeeded by an end to conflict at time t , that is,

the cases of $w_{it} = 0$ that are preceded by $w_{it} = 1$. We are thus concerned that the strict exogeneity assumption is violated, rendering the FE and FE AR(1) estimators inconsistent. We also note that the Within estimator may be biased and inconsistent in samples with large N and small T and the presence of a lagged dependent variable is mechanically correlated with the error term, violating its strict exogeneity (Perotti, 1996).

We are thus immediately confronted with significant econometric issues that, if left uncorrected, are likely to result in inconsistent and biased estimates. As democracy may slowly change over time, it is probable that the current level of democracy is dependent upon the level of democracy in the previous period. While there are significant variations in the level of democracy across countries, democracy is relatively stable within countries. Of the 96 countries in the sample, 26 experienced no change in the level of democracy throughout their sample period. Several authors have recently estimated dynamic models of the relationship between democracy and education, finding that the first period lagged level of democracy is statistically significant at the 1% level (Aslaksen, 2010; Epstein et al., 2006; Karl, 1999; Rosendorff, 2001; Ross, 2006). The individual effects, characterizing the heterogeneity among countries, are a second source of persistence over time. Finally, we are concerned that some of the traditional determinants of democracy, to include GDP per capita, are endogenous. Previous explorations of the determinants of democracy that do not take these potential econometric issues into account are likely to be suspect, due to the inconsistent nature of their estimators.

One response to these concerns, the difference GMM estimator that (Arellano & Bond, 1991) propose, is a consistent and possibly efficient estimator in the presence of a lagged dependent variable and significant individual effects. Essentially, it uses all available lagged

levels of the dependent variable as instruments for the lagged difference of the dependent variable as well as any other potentially endogenous variables, beginning with the second lag. While theoretically valid, the Arellano-Bond procedure can lead to many instruments and loss of precision. The persistence in the levels of education, oil, and democracy may account for the insignificant relationships in much of the literature employing fixed effects and various difference estimators (Aslaksen, 2010). The Arellano-Bond and Anderson-Hsiao estimators may also be ineffective because levels may not be good instruments for differences (Fortna, 2004; Walter, 2001); instead, differences may be a superior instrument for the levels (Brancati & Snyder, 2011; Doyle & Sambanis, 2000; Hoddie & Hartzell, 2010; Joshi, 2010).

We estimate a system-GMM aimed at controlling for potential endogeneity of the democracy variable (Cronin, 2010). We explicitly control for fixed time effects. The short T and persistent series, appear to support the extra moment conditions of the system GMM vice the difference GMM (Baltagi, 2008). The system GMM estimator should thus produce dramatic efficiency gains over the basic difference GMM as the persistence effect of the dependent variable grows (Blundell & Bond, 1998). We also use a two-step process and the Windmeijer corrected standard errors to address the problems of serial correlation and heteroscedasticity.² We test the validity of the moment conditions by using the Sargan test. We also test the hypothesis that the error term in the second order is not serially correlated and robustness of additional moment conditions with the Hansen difference test. Finally, we explore the sensitivity of our results to changes in the set of instruments (Roodman, 2008).

4.3 Empirical Results

We find that the end of a civil war statistically significantly negatively impacts the level of democracy in the succeeding period (Table 4). Our initial results suggest that the termination of a civil war reduces the adjusted Polity score in the succeeding period at the 5% level of significance. Following the literature, we present the results from the OLS, FE, and FE AR(1) estimators, which suggest that the end of a civil war negatively impacts democratization in the succeeding period. The OLS, FE, and FE AR(1) estimators with lagged dependent variables should provide the upper or lower bounds on the estimated coefficient of interest (Wooldridge, 2001), even though these estimators are inconsistent (Columns (1-4)). Turning to the system GMM estimates, the estimated coefficient for the termination of conflict is negatively and statistically significant. We find that this result is consistent whether we limit the instruments to the second-period lagged level or if we allow for all available lags of the instruments for democracy (Column 5). We also fail to reject the null hypothesis for whether the error term is second order serially correlated, whether we have over identified the model, and whether the instruments are exogenous.

Table 4 here

4.4 Robustness Checks

We now turn to the question of whether the estimated coefficient for *War End* is statistically robust to the inclusion of additional explanatory variables and changes in the set of instruments. Our set of conditioning variables includes per-capita GDP, openness to international trade, and population, among others. System GMM may generate false results if the set of instruments is too large and Roodman (2008) recommends aggressively testing for sensitivity to reductions in the number of instruments; the literature often ignores this recommendation. We

thus err on the side of caution and validate results from the lower bound of using the second-period lagged level to all possible lags.³

Table 5 reports the results for the set of estimations using the second period lagged levels as instruments for the first period differences. We instrument for the lagged levels of democracy, GDP per capita, openness to international trade, and resource rents as a share of GDP. Regardless of the set of instruments and additional conditioning variables, the estimated coefficient for lagged democracy remains statistically significant and negative. This result provides additional evidence that the termination of a civil war appears to induce a decline in the level of democracy in the succeeding period. We find scant evidence to corroborate significant impacts from these control variables as suggested by the literature. Our results cast doubt on the suggestion that countries experiencing civil war democratize for the same reasons as those unaffected by civil war (Fortna & Huang, 2009). Despite any impacts war may have on development, or that development may have on war, countries that have experienced war have lower subsequent levels of democratization. These findings are consistent when we expand the set of instruments up to the fourth lagged levels of the explanatory variables, where applicable (Column 10).⁴

Table 5 here

4.5 Characteristics of Civil War

Having determined whether the estimated coefficient for the end of civil war is statistically robust, we now turn to the question of whether the characteristics of civil war have a statistically significant impact on democracy. We explore whether the duration of a civil war, whether the war ends with a clear victor, and whether the rebels win the civil war, have an

impact on the level of democracy in the succeeding period. Also, we include UN intervention as a measure of external intervention, interacted with conflict termination. Lastly, we include education as a regressor in one of our models, as previous literature has argued that education significantly influences democratization, but because it is insignificant and reduces our sample size, we do not include it elsewhere. Table 6 presents the results of these estimations.

Table 6 Here

We fail to find empirical support for the hypothesis that the duration of civil war statistically influences democracy. The estimated coefficient for duration is insignificant in most specifications and is fragile with the inclusion of additional instruments. We do find stronger evidence that rebel victories and stalemates influence the succeeding level of democracy. Rebel victories may reduce the level of democracy in the succeeding period, although the estimated coefficient appears to be fragile to specification and sample choice. On the other hand, civil wars that end in a stalemate evidently have a positive, statistically significant, and robust influence on democratization in the succeeding period. UN intervention, similarly, shows consistently positive and statistically significant impacts on democratization. These findings suggest that the conditions under which a civil war ends are important indicators of a country's subsequent political development.

4.6 Alternative measures of democracy

Lastly, we turn to the question of whether our measure of democracy influences the results above. We construct two alternative measures of democracy that range from 1979 to 2004. The first measure is the adjusted Polity IV democracy score. The second measure is derived from the Freedom House's measures of civil liberties and political rights. We normalize

both measures of democracy for comparability with 0 being a complete lack of democracy and 1 being completely free. We continue to caution that the Freedom House measure of democracy may be biased, as we are unable to ascertain the extent to which war affects the measures of civil liberties and political rights.

We continue to find evidence that the end of civil war negatively affects democratization in the succeeding period. The estimated coefficient for civil war is statistically significant at the 5% and 10% level, depending on the set of explanatory variables and instruments. We continue to find support for the hypothesis that U.N. intervention has a positive impact on democratization, though this finding does appear to be fragile to the choice of democracy variable. The other characteristics of civil war (duration, stalemate, rebel victory) are statistically insignificant in this sample, as are the conditioning variables.

Table 7 Here

5. DISCUSSION AND CONCLUSION

The question of whether civil war termination improves democracy is timely and relevant. While the termination of civil war is often cause for hope with regards to the emergence of democracy, the empirical evidence suggests that this hope may be forlorn. Civil war may damage civil institutes (or inhibit their prospects for growth) such that, in its aftermath, more authoritarian forms of government are more likely to emerge.

In summary, we find evidence that the termination of a civil war negatively impacts democracy in the succeeding period. This evidence appears to be robust and statistically significant across a number of specifications, instrument sets, and measures of democracy. While

many hope that the end of internal conflict will promote the emergence of a democratic society, our findings suggest that the post-conflict environment moves towards authoritarian regimes.

We also find evidence to suggest that external intervention may increase democratization in the succeeding period. This finding appears relatively robust though it fails to appear when we employ the Freedom House measure of democracy; thus, our conclusions are tinged with a note of caution. We argue that this appears to support the argument that outside intervention is necessary to promote democratization after a period of internal conflict. The parties may require an independent arbiter to not only separate them, but also to moderate discussion and the emergence of democracy.

These findings suggest that merely negotiating a conclusion to civil war is insufficient to promote democratization. External intervention, coupled with the end of conflict, appears to be supportive of the movement towards a more democratic and representative society.

Table 1
Variables

Variable	Definition	Units	Source
Democracy (Polity)	The degree of openness of democratic institutions as measured by the Polity IV score for democracy net of the <i>Regulation of Participation</i> and <i>Competitiveness of Participation</i> components of the democracy score.	-6 to 7	
Population	Natural log of population at start of period.		Penn World Tables 7.0 Heston, Summers, Aten, 2011
GDP Per Capita	Natural log of purchasing power parity adjusted GDP per capita at the start of the period.		Penn World Tables 7.0 Heston, Summers, Aten, 2011
Openness to International Trade	Measured as the sum of exports and imports as a share of GDP		Penn World Tables 7.0 Heston, Summers, Aten, 2011
Education	Measures the average number of years of schooling of the population over the age of 25.		www.barrolee.com
Rents Per Capita	Measures the difference between the value of production of natural resources and total costs of production. This is a cumulative measure of oil, natural gas, mineral, coal, and forest rents.		World Development Indicators http://databank.worldbank.org
War End	Takes the value of 1 if a civil war ended during the period.	0,1	Correlates of War (Sarkees & Wayman, 2010)
Stalemate	Takes the value of 1 if a civil war ended in a stalemate during the period.	0,1	Correlates of War (Sarkees & Wayman, 2010)
Rebel Victory	Takes the value of 1 if a civil war ended in a rebel victory during the period.	0,1	Correlates of War (Sarkees & Wayman, 2010)
Duration	Evaluated in the period the conflict ends it takes on the number of years a conflict was ongoing.		Correlates of War (Sarkees & Wayman, 2010)
U.N. Intervention	This variable takes the value of 1 if a war ended and there was UN intervention during the period.	0,1	Doyle and Sambanis, 2000 and http://www.un.org/en/peacekeeping/operations

Table 2
Descriptive Statistics

Series	N	Mean	Standard Deviation	Minimum	Maximum
Democracy (Polity)	620	1.91	4.56	-6	7
Population	620	45,397	141,628	455.15	1,300,000
GDP Per Capita	620	7760	9080	345.97	44813
Openness to International Trade	620	64.74	44.33	5.31	412.16
Rents Per Capita	620	37713	87944	0	868256
Education	593	5.03	3.03	0.195	13.00
War End	620	.076	.265	0	1
Duration	620	0.284	1.56	0	20
U.N. Intervention	620	.011	.106	0	1

Table 3
Sample Countries

Country	Years	Country	Years
Algeria	1970-2004	Japan	1970-2004
Argentina	1970-2004	Kenya*	1970-2004
Australia*	1970-2004	Lesotho	1970-1999, 2005-2004
Austria*	1970-2004	Madagascar	1970-2004
Bangladesh	1975-2004	Malawi	1970-2004
Belgium*	1970-2004	Malaysia	1970-2004
Benin	1975-1989, 1999-2004	Mali	1970-2004
Bolivia	1970-2004	Mauritania*	1970-2004
Botswana	1970-2004	Mexico	1970-2004
Brazil	1970-2004	Morocco	1970-2004
Burkina Faso	1970-2004	Namibia*	1990-2004
Burundi	1970-1994, 2000-2004	Nepal	1970-2004
Cameroon	1970-2004	Netherlands*	1970-2004
Canada*	1970-2004	Nicaragua	1970-1979, 1985-2004
Central African Rep.	1970-2004	Niger	1970-2004
Chad	1970-1979, 1985-2004	Nigeria	1970-2004
Chile	1970-2004	Norway*	1970-2004
China	1970-2004	Pakistan	1975-2004
Colombia	1970-2004	Papua New Guinea*	1975-2004
Congo	1970-2004	Paraguay	1970-2004
Costa Rica*	1970-2004	Peru	1970-1999
Cote d'Ivoire	1970-2004	Philippines	1970-2004
Cuba*	1970-2004	Portugal	1970-1974, 1980-2004
Dem. Rep. of the Congo*	1970-1994	Qatar	1975-2004
Denmark*	1970-2004	Romania	1970-2004
Dominican Rep.	1970-2004	Rwanda	1970-2004
Ecuador	1970-2004	Senegal	1970-2004
Egypt*	1970-2004	Sierra Leone	1970-1999
El Salvador	1970-1979, 1985-2004	Singapore*	1970-2004
Fiji	1970-1999	South Africa*	1970-2004
Finland*	1970-2004	South Korea	1970-2004
France	1970-2004	Spain	1970-1974, 1980-2004
Gabon	1974-1989, 1999-2004	Sri Lanka	1970-2004
Gambia	1970-1989, 1995-2004	Sudan	1975-1984, 1990-2004
Germany*	1994-2004	Swaziland	1970-2004
Ghana	1970-2004	Sweden*	1970-2004
Greece	1970-2004	Syria	1970-2004
Guatemala	1970-1984, 1990-2004	Thailand	1970-2004
Guyana	1970-2004	Togo	1970-2004
Haiti	1970-2004	Trinidad and Tobago*	1970-2004
Honduras	1970-1979, 1985-2004	Tunisia	1970-2004
Hungary	1970-2004	Turkey	1970-2004
India	1970-2004	Uganda	1970-1984, 1990-2004
Indonesia	1970-2004	United Kingdom*	1970-2004
Iran	1970-1979, 1985-2004	United States*	1970-2004
Ireland*	1970-2004	Uruguay	1970-2004
Israel*	1970-2004	Venezuela	1970-2004
Italy*	1970-2004	Zambia	1970-2004

*Indicates no variation in X-POLITY score for the duration

Table 4
Democracy and Civil War

	Pooled OLS	Fixed Effects	Fixed Effects AR(1)	System GMM	System GMM
	(1)	(2)	(3)	(4)	(5)
Democracy _{t-5}	0.08** (0.02)	0.35** (0.07)	0.21** (0.6)	0.87** (0.29)	0.78** (0.12)
War End _{t-5}	-2.02** (0.58)	-1.63** (0.59)	-1.69** (0.53)	-2.00* (0.64)	-1.35* (0.59)
Constant	0.82** (0.14)	0.37** (0.26)	2.50 (2.44)	0.87 (0.94)	1.21** (0.32)
Time Dummies	No	Yes	Yes	Yes	Yes
N	514	514	421	514	514
ρ	--	--	0.35	--	--
R^2	0.70	0.31	0.12	--	--
Number of Instruments				9	12
Lag Limits				2	All available lags
AR(1) test	--	--	--	-1.95*	-3.07**
AR(2) test	--	--	--	0.88	1.15
Sargan Test	--	--	--	0.98	4.20
Difference Hansen	--	--	--	1.28	0.86

Robust standard errors in parentheses. The instruments are levels of the explanatory variables lagged two periods as well as the variables in first differences lagged one period. **,*,+ denote significance at the 1%,5%, and 10% level respectively.

Table 5
Robustness Checks

	System GMM	System GMM	System GMM	System GMM	System GMM
	(6)	(7)	(8)	(9)	(10)
Democracy _{t-5}	1.05** (0.21)	1.04** (0.21)	1.04** (0.22)	0.99** (0.19)	0.78** (0.11)
War End _{t-5}	-2.12** (0.76)	-2.24+ (0.77)	-2.25** (0.77)	-2.20** (0.74)	-1.48* (0.69)
GDP Per Capita _{t-5}	-0.32 (0.42)	-0.37 (0.42)	-0.48 (0.47)	-0.56 (0.51)	-0.17 (0.56)
Population _{t-5}		0.13 (0.07)	0.29 (0.35)	0.24 (0.33)	0.18 (0.42)
Openness to International Trade _{t-5}			0.57 (1.16)	0.36 (1.12)	0.03 (1.31)
Rents Per Capita _{t-5}				-0.14 (0.20)	-0.03 (0.19)
Constant	2.95 (3.20)	2.16 (3.24)	-0.75 (6.83)	1.48 (6.71)	0.55 (6.25)
Time Dummies	Yes	Yes	Yes	Yes	Yes
N	514	514	514	514	514
Number of Instruments	11	12	14	16	24
Lag Limits	2	2	2	2	4
AR(1) test	-2.45**	-2.44**	-2.51**	-2.64**	-3.28**
AR(2) test	1.04	1.01	1.02	1.08	1.14
Sargan Test	1.00	1.04	0.88	0.83	12.42
Difference Hansen	0.90	0.95	0.82	1.11	8.32

Robust standard errors in parentheses. The instruments are levels of the explanatory variables lagged two periods as well as the variables in first differences lagged one period, except in (10) where we employ up to four lags of the explanatory variables. **,*,+ denote significance at the 1%,5%, and 10% level respectively.

Table 6
Characteristics of Civil War

	System GMM	System GMM	System GMM	System GMM
	(10)	(11)	(12)	(13)
Democracy _{t-5}	1.01** (0.24)	0.79** (0.11)	0.97** (0.15)	0.81** (0.13)
War End _{t-5}	-1.71* (0.81)	-1.41+ (0.83)	-2.23* (0.99)	-1.47* (0.69)
GDP Per Capita _{t-5}			-0.48 (0.45)	-0.27 (0.51)
Population _{t-5}			0.25 (0.33)	0.27 (0.51)
Openness to International Trade _{t-5}			0.45 (1.08)	0.53 (1.28)
Rents Per Capita _{t-5}			-0.08 (0.20)	-0.02 (0.21)
Duration _{t-5}	-0.11 (0.08)	-0.11 (0.07)	-0.07 (0.08)	-0.14* (0.06)
U.N. Intervention _{t-5}	3.39* (1.37)	2.50* (1.12)	3.10** (1.09)	3.26* (1.05)
Rebel Win _{t-5}	-3.19* (1.44)	-2.99 (2.13)	-2.82* (1.58)	-4.71** (1.43)
Stalemate _{t-5}	2.05* (0.93)	2.38** (0.87)	1.78+ (0.89)	1.81+ (1.00)
Education _{t-5}				-0.03 (0.23)
Constant	0.29 (0.80)	1.11** (0.32)	-0.34 (6.46)	-1.64 (7.80)
Time Dummies	Yes	Yes	Yes	Yes
N	514	514	514	492
Number of Instruments	13	16	19	22
Lag Limits	2	All possible	2	2
AR(1) test	-2.29*	-3.13**	-2.85**	-2.76**
AR(2) test	0.98	1.03	0.46	0.64
Sargan Test	0.75	4.70	0.34	1.41
Difference Hansen	0.88	0.75	0.49	1.37

Robust standard errors in parentheses. The instruments are levels of the explanatory variables lagged two periods as well as the variables in first differences lagged one period. **, *, + denote significance at the 1%, 5%, and 10% level respectively.

Table 7
Alternative Measures of Democracy

	System GMM	System GMM	System GMM	System GMM
Dependent Variable	Normalized Polity	Normalized Freedom House	Normalized Polity	Normalized Freedom House
	(16)	(17)	(18)	(19)
Democracy Alternate _{t-5}	0.73** (0.10)	0.67** (0.09)	0.87** (0.19)	1.06** (0.23*)
War End _{t-5}	-0.15** (0.06)	-0.11* (0.05)	-0.21+ (0.11)	-0.18+ (0.08)
GDP Per Capita _{t-5}			-0.03 (0.07)	-0.17 (0.09)
Population _{t-5}			0.04 (0.04)	0.06 (0.03)
Openness to International Trade _{t-5}			0.10 (0.15)	0.19 (0.12)
Rents Per Capita _{t-5}			-0.01 (0.03)	-0.04 (0.03)
Duration _{t-5}			-0.01 (0.01)	0.01 (0.01)
U.N. Intervention _{t-5}			0.24* (0.10)	0.13 (0.09)
Rebel Win _{t-5}			-0.11 (0.16)	0.02 (0.09)
Stalemate _{t-5}			0.16 (0.15)	-0.11 (0.10)
Constant	0.21** (0.07)	0.23** (0.06)	-0.36 (0.93)	0.07 (0.66)
Time Dummies	Yes	Yes	Yes	Yes
N	429	429	429	429
Number of Instruments	10	10	19	19
Lag Limits	3	3	2	2
AR(1) test	-4.39**	-4.11**	-2.84**	-2.62**
AR(2) test	0.78	-0.04	0.74	-0.10
Sargan Test	4.32	4.17	7.45	3.68
Difference Hansen	2.85	0.87	6.96	4.88

Robust standard errors in parentheses. The instruments are levels of the explanatory variables lagged two periods as well as the variables in first differences lagged one period. **, *, + denote significance at the 1%, 5%, and 10% level respectively.

References

- Acemoglu, D., Johnson, S., Robinson, J., & Yared, P. (2008). Income and Democracy. *The American Economic Review*, 98(3), 808.
- Acemoglu, Daron, Johnson, S., Robinson, J. A., & Yared, P. (2005). From Education to Democracy? *American Economic Review*, 95(2), 44–49.
doi:10.1257/000282805774669916
- Acemoglu, Daron, & Robinson, J. A. (2005). *Economic Origins of Dictatorship and Democracy* (First ed.). Cambridge University Press.
- Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, 58(2), 277–297. doi:10.2307/2297968
- Arena, P., & Hardt, B. (2011, April). *Incentives to Rebel, Bargaining, and Civil War*. Working Paper.
- Aslaksen, S. (2010). Oil and democracy: More than a cross-country correlation? *Journal of Peace Research*, 47(4), 421 –431. doi:10.1177/0022343310368348
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restriction in dynamic panel data models. *Journal of Econometrics*, 87, 11–143.
- Brancati, D., & Snyder, J. L. (2011). Rushing to the Polls: The Causes of Premature Postconflict Elections. *Journal of Conflict Resolution*, 55(3), 469 –492.
doi:10.1177/0022002711400863
- Castelló-Climent, A. (2008). On the distribution of education and democracy. *Journal of Development Economics*, 87(2), 179–190. doi:10.1016/j.jdeveco.2007.10.006

- Chauvet, L., & Collier, P. (2009). Elections and economic policy in developing countries. *Economic Policy*, 24(59), 509–550. doi:10.1111/j.1468-0327.2009.00228.x
- Chen, S., Loayza, N. V., & Reynal-Querol, M. (2008). The Aftermath of Civil War. *The World Bank Economic Review*, 22(1), 63 –85. doi:10.1093/wber/lhn001
- Collier, P. (2008). *The Bottom Billion: Why the Poorest Countries are Failing and What Can Be Done About It*. Oxford University Press, USA.
- Collier, P., & Hoeffler, A. (2004). Greed and grievance in civil war. *Oxford Economic Papers*, 56(4), 563.
- Collier, P., & Hoeffler, A. (2005). Resource Rents, Governance, and Conflict. *Journal of Conflict Resolution*, 49(4), 625–633. doi:10.1177/0022002705277551
- Cronin, B. (2010). Be careful what you wish for: War aims and the construction of postwar political orders. *Journal of Peace Research*, 47(6), 791 –801.
doi:10.1177/0022343310381621
- Csordás, S., & Ludwig, M. (2011). An empirical investigation of the determinants of democracy: Trade, aid and the neighbor effect. *Economics Letters*, 110(3), 235–237.
doi:10.1016/j.econlet.2010.12.006
- Derouen, K. R., & Bercovitch, J. (2008). Enduring Internal Rivalries: A New Framework for the Study of Civil War. *Journal of Peace Research*, 45(1), 55 –74.
doi:10.1177/0022343307084923
- Doyle, M. W., & Sambanis, N. (2000). International peacebuilding: A theoretical and quantitative analysis. *The American Political Science Review*, 94(4), 779.

- Epstein, D. L., Bates, R., Goldstone, J., Kristensen, I., & O'Halloran, S. (2006). Democratic Transitions. *American Journal of Political Science*, 50(3), 551.
- Fortna, V. P. (2004). Does Peackeping Keep Peace? International Intervention and the Duration of Peace After Civil War. *International Studies Quarterly*, 48, 269–292.
- Fortna, V. P., & Huang, R. (2009, November). *Democratization After Civil War*. Working Paper. Retrieved from <http://www.columbia.edu/~vpf4/research.htm>
- Gleditsch, K. S. (2002). *All International Politics Is Local: The Diffusion of Conflict, Integration, and Democratization*. University of Michigan Press.
- Gurses, M. (2011). Elites, Oil, and Democratization: A Survival Analysis*. *Social Science Quarterly*, 92(1), 164–184. doi:10.1111/j.1540-6237.2011.00762.x
- Gurses, M., & Mason, T. D. (2008). Democracy Out of Anarchy: The Prospects for Post-Civil-War Democracy. *Social Science Quarterly*, 89(2), 315–336. doi:10.1111/j.1540-6237.2008.00534.x
- Hausman, J. (1978). Specification Tests in Econometrics. *Econometrica*, 46(6), 1251–1271. doi:10.2307/1913827
- Heid, B., Langer, J., & Larch, M. (2012). Income and democracy: Evidence from system GMM estimates. *Economics Letters*, 116(2), 166–169. doi:10.1016/j.econlet.2012.02.009
- Heston, A., Summers, R., & Aten, B. (2011). Penn World Table Version 7.0. *Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania*. Retrieved from http://pwt.econ.upenn.edu/php_site/pwt_index.php
- Hoddie, M., & Hartzell, C. A. (2010). *Strengthening Peace in Post-Civil War States: Transforming Spoilers Into Stakeholders*. University of Chicago Press.

- Jensen, N., & Wantchekon, L. (2004). Resource wealth and political regimes in Africa. *Comparative Political Studies*, 37(7), 816.
- Joshi, M. (2010). Post-civil war democratization: promotion of democracy in post-civil war states, 1946–2005. *Democratization*, 17(5), 826–855.
doi:10.1080/13510347.2010.501173
- Karl, T. L. (1999). The Perils of the Petro-State: Reflections on the Paradox of Plenty. *Journal of International Affairs*, 53(1), 32–48.
- Levine, R., & Renelt, D. (1992). A Sensitivity Analysis of Cross-Country Growth Regressions. *The American Economic Review*, 82(4), 942–963.
- McBride, M., Milante, G., & Skaperdas, S. (2011). Peace and War With Endogenous State Capacity. *Journal of Conflict Resolution*, 55(3), 446–468.
doi:10.1177/0022002711400862
- Perotti, R. (1996). *Growth, Income Distribution, and Democracy: What the Data Say* (Journal of Economic Growth) (pp. 149–87). Springer. Retrieved from
<http://ideas.repec.org/a/kap/jecgro/v1y1996i2p149-87.html>
- Roodman, D. (2008, May). A Note on the Theme of Too Many Instruments. Center for Global Development. Retrieved from http://www.cgdev.org/files/14256_file_Instruments.pdf
- Rosendorff, B. P. (2001). Choosing Democracy. *Economics and Politics*, 13(1), 1–29.
doi:10.1111/1468-0343.00081
- Ross, M. (2001). Does Oil Hinder Democracy? *World Politics*, 53(3), 325–361.
- Ross, M. (2006). A Closer Look at Oil, Diamonds, and Civil War. *Annual Review of Political Science*, 9(1), 265–300. doi:10.1146/annurev.polisci.9.081304.161338

- Sachs, J. D., & Warner, A. M. (1999). The big push, natural resource booms and growth. *Journal of Development Economics*, 59(1), 43.
- Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. *European Economic Review*, 45(4-6), 827.
- Sarkees, M. R., & Wayman, F. (2010). *Resort to War: 1816-2007*. CQ Press.
- Sen, A. (2000). *Development as Freedom* (Reprint.). Anchor.
- Walter, B. F. (2001). *Committing to Peace: The Successful Settlement of Civil Wars*. Princeton University Press.
- Wantchekon, L. (2004). The Paradox of “Warlord” Democracy: A Theoretical Investigation. *The American Political Science Review*, 98(1), 17.
- Wooldridge, J. M. (2001). *Econometric Analysis of Cross Section and Panel Data* (1st ed.). The MIT Press.

¹ We use Likelihood Ratio and F tests to examine if the country and time-specific effects are jointly equal to zero and in all cases we are unable to reject the null hypothesis that the effects are jointly equal to zero. We thus include country and time specific effects for these models. We also test whether the explanatory variables and individual effects are correlated using a modified Hausman test to ascertain whether we should employ the Within or random effects GLS estimator (Hausman, 1978). We reject the null hypothesis of no correlation in all cases suggesting the used of the within estimator. Test statistics are available upon request.

² Using the fixed effects estimator, we reject the null hypothesis of homoscedasticity at the 1% level of significance. We also reject the null hypothesis of no serial correlation at the 1% level. Test statistics are available upon request.

³ These estimates are available upon request.

⁴ We use the Sargen, Hansen J, and difference in Hansen tests to examine issues of over-identification and exogeneity of the instruments. Expanding the set of instruments to the fifth lagged level (where possible) leads to

values of these tests that are close to the critical values. We exercise caution and reduce the set of instruments to the fourth lagged level as suggested by Roodman (2006, 2008).